[Disclosure]

[Technical Problem]

Accordingly, studies with relation to an adhesive tape which overcomes the above-mentioned shortcomings are needed. Namely, an adhesive tape is needed in which static electricity does not occur even when the tape is attached to or detached from the surface of electronic parts, and in which the solvent resistance of the opposite surface of the tape is excellent while the antistatic property of both surfaces can be permanently maintained.

[Technical Solution]

An object of the present invention provides a permanent antistatic adhesive tape in which one surface of the tape can have a surface resistivity in the range of 10^6-10^{11} ohms/square ($\Omega/\square$) by forming a conductive polymer-based antistatic layer on the surface and an adhesive layer thereon, and the opposite surface can have a controllable surface resistivity in the range of 10^3-10^{10} $\Omega/\square$, by forming a conductive polymer-based hard coating layer on the opposite surface, and at the same time, has excellent resistance to various solvents.

[Advantageous Effects]

The adhesive layer in the adhesive tape according to

the present invention can have a controllable surface resistivity in the range of 10^6-10^{11} Ω/□ and does not cause static electricity when the tape is detached from a surface of the parts to which it had been stuck or attached. Also, the antistatic hard coating layer formed on the surface opposite to the adhesive layer can have a controllable surface resistivity in the range of 10^3-10^{10} Ω/□ and has excellent resistance to various solvents. Thus, the adhesive tape according to the present invention can permanently maintain its antistatic property on both surfaces.

[Description of Drawings]

FIG. 1 is a cross-sectional view of an antistatic adhesive tape according to a preferred embodiment of the present invention.

[Best Mode]

In order to achieve the above object, the present invention provides an antistatic adhesive tape comprising a base film and, on one surface of the base film, 1) a conductive polymer-based conductive layer and an adhesive layer formed on the conductive layer, or 2) a layer formed of a mixture of a conductive polymer and an adhesive agent.

Also, the present invention provides an antistatic adhesive tape with hard coating property comprising a base film and, on one surface of the base film, 1) a layer

10 g of poly(3,4-ethylenedioxythiophene) dispersion, 30 g of 30% methoxymethylamide solution, 0.2 g of para-toluenesulfonic acid, 0.01 g of Zonyl (Dupont Co.), and 0.2 g of ethylene glycol were dissolved in 60 g of a mixture solution of ethyl alcohol and isopropyl alcohol. The resulting solution was coated on a polyester film then dried at 100 ℃ for 2 minutes. The film thus produced had a surface resistivity of 10^5 Ω/□ and an adhesion of 5B as measured according to an ASTM D3359 standard test method. Also, the produced film was 98% transparent at wavelength of 550 nm. After the film was coated with an adhesive component and left to stand for 5 days, it showed a resistivity of 10^5 Ω/□.

Also, an epoxy adhesive layer was formed on the produced conductive polymer layer in a thickness of 5 μm. The surface resistivity of the adhesive layer was measured to be 10^8 Ω/□.

Example 2

3.5 mmol of 3,4-ethylenedioxythiophene, 8.1 mmol of ferric toluenesulfonate, and 2.3 mmol of ethanol were dissolved in 15 g of ethanol. The solution was coated on a polyester film in a thickness of 1.5 μm then placed in a heat-circulating oven at 100 ℃ for 2 minutes so as to induce a reaction. After completion of the reaction, the film was taken out of the oven and its surface was washed with ethyl alcohol and dried, thus producing a transparent

Example 4

30 parts by weight of a poly(3,4-ethylenedioxythiophene) dispersion(Baytron PH, Bayer) and 20 parts by weight of a UV curable hard coating agent (UC150H, Uray, Korea) which was dissolved in 70 parts by weight of isopropyl alcohol. The solution was coated on the surface of a polyester film, which was opposite to a surface applied with an adhesive agent. The coated material was dried at 60 ℃ for 1 minute and then cured in a UV coater.

The produced film had a surface resistivity of 10^7 Ω/□. When the produced film was rubbed 20 times with cleanpaper saturated with acetone, there is no damage to the surface of the film.

Example 5

10 g of 3,4-ethylenedioxythiophene (Baytron PH, Bayer Gmbh, Germany), 29 g of an urethane binder (U710, ALBERDINGK, Germany), 1 g of a melamine curing agent, 0.5 g of ethylene glycol, 0.5 g of N-methyl pyrrolidone, and 0.01 g of a fluorine-based surfactant were mixed in isopropyl alcohol to a total of 100 parts by weight. The resulting dispersion was coated on the surface of a polyester film, opposite to the surface applied with an adhesive agent. On the coated material, a UV curing agent (UC150H, Uray, Korea) was coated as a protective coating layer in a thickness of 1 μm. The resulting film was dried at 60 ℃